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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/510,889

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Andreas Lendlein

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EXAMINER

SIMMONS WILLIS, TRACEY A

ART UNIT

PAPER NUMBER

4161

MAIL DATE

DELIVERY MODE

10/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/510,889	Applicant(s) LENDLEIN ET AL.	
	Examiner TRACEY SIMMONS WILLIS	Art Unit 4161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 21-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on October 8, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10082004; 12202004; 05222006; 08222006</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Status of the Claims

Examiner notes Applicant's response to a restriction requirement filed on August 18, 2008 in which Applicant selected with traverse, Group I, including claims 1-20 and 29. Examiner maintains the restriction requirement as the search queries encompassed for the steps of the method do not necessarily encompass those of the composition. Examiner has withdrawn claims 21-28 from consideration. Claims 1-29 are pending with claims 1-20 and 29 as the subject of this Office Action. This is the first Office Action on the merits of the claims.

Priority

The instant application is a national stage entry of PCT/EP03/03733 filed on April 10, 2003. This application claims foreign benefit of DE 102 15 858 filed on April 10, 2002 and DE 102 28 120 filed on June 24, 2002. The earliest U.S filing date afforded instantly claimed invention is April 10, 2003.

Information Disclosure Statement

Four Information Disclosure Statements were filed on October 8, 2004, December 20, 2004, May 22, 2006, and August 22, 2006.

Claim Objections

Claims 16 and 29 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should be written in alternative form. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by International Patent Application WO/2002/09655 (Rollat-Corvol et al).

Rollat-Corvol et al teach of reshapable hair styling compositions [page 1, line 6] comprising polyurethane [page 2, line 11] in which the composition can contain cationic groups to stabilize the dispersion or cationic surfactants [page 10, line 5 and page 21, lines 4-5]. The composition of Rollat-Corvol et al is applied before, during, or after shaping the hair [page 20, lines 15-17]. After the hair is dried and styled, the style is removed and restored by brushing [page 24, line 24 and page 24, lines 8-9]. These features meet the limitations of instant claims 1 and 17, as the first active principle is formed from compounds [page 3, lines 1-8] and the physical change and stimulation cited is done by drying and brushing the hair. With regards to instant claim 2, the synergistic increased shape memory effect as cited is an inherent property of the composition as the cationic agent can be used to improve the dispersity of the memory shape polymer allowing for better application to the hair. Rollat-Corvol et al teach of a cationic compound of structure $R-N^+(R_2)[(OCH_2CH_2)_nOH]_2X^-$ in which two hydroxyalkyl groups are present and R and R_2 can be C_{8-18} aralkyl structures and X^- is an anion [page 10, lines 9-13]. The requirement of the cationic surfactant cited in instant claim 18 in which R^1 to R^4 can

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independently be hydroxyalkyl groups and alkaryl groups having 1 to 22 carbon atoms is anticipated by the stabilizing cationic compound of Rollat-Corvol et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-15 are rejected under 35 U.S.C. 103(a) as being obvious over International Patent Application No. WO/2002/09655 (Rollat-Corvol et al) in view of International Patent Application No. WO/1999/42528 (Langer et al).

The instant claims cite a method for treatment of hair comprising applying a composition to hair and fixing the shape of the hair. The composition allows the hair to retrieve the original shape, if disrupted, by physical stimulation. The composition comprises at least one first active principle capable of providing a shape memory effect and a second active principle selected among cationic agents. The memory shape polymer comprises a hard (thermoplastic) and soft (crosslinkable) segment in which the transition temperature of the soft segment is lower than that of the hard segment. The memory shape polymer is a copolyester urethane prepared from macrodiols and diisocyanate. The hair can be shaped and reshaped by varying the transition temperatures of the polymers.

Rollat-Corvol et al teach of reshapable hair styling compositions comprising polyurethanes [Title], and cationic groups [page 10, line 5 and page 21, lines 4-5], the

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compositions are applied before, during, or after shaping the hair [page 20, lines 15-17] (and as discussed above). Rollat-Corvol do not specifically teach of the first active principle being a crosslinkable macromer with crosslinkable (soft) and thermoplastic (hard) segments, of the properties of the shape memory polymer, or of the specific transition temperatures cited to reshape the hair.

Langer et al teach of shaped memory polymer compositions and methods of preparation of such shape memory polymers by combining a hard and soft segment with crosslinkable groups that are linked either by an interpenetrating network, a mixed interpenetrating network, or physical interactions [abstract]. The shape memory polymers contain a hard and soft segment [page 4, top of paragraph 4], in which the hard segment can contain one physical crosslink [page 5, top of paragraph 2]. The shape memory polymers in one embodiment can be comprised of mixed interpenetrating networks which include one physically crosslinked polymer network and one covalently crosslinked polymer network [page 16, middle of page] in which the shape is fixed by the covalently crosslinked network, meeting the limitations of instant claim 3. Langer et al teach of the macromonomers existing as hydrogels which can be formed from blends and copolymers of compounds such as methacrylic acid and polyethylene glycol [page 13, paragraph 4] meeting the limitations of instant claims 6 and 7. While Langer et al is silent to the specific arrangement of the polymers as cited in instant claim 5, with the thermoplastic polymer or oligomer segment between chemically crosslinkable groups, Langer et al does teach of polymer blends which form two hard thermoplastic segments and one soft segment [page 17, paragraph 3] in which the soft segments of the two components blended is the same and is melted together. As a result, two hard segments enclose the soft segment. This arrangement the thermoplastic

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segment maintains the original shape and the reactive segments allow for a second shape to be formed as disclosed by Langer et al [page 25, paragraph 1(continuing paragraph)]. One of ordinary skill in the art at the time the invention was made would have been motivated to arrange the segments in reverse order of Langer et al by placing the thermoplastic segment in the middle as Langer et al teach other kinds of blends can be made if at least one segment of the two components blended is the same [page 17, paragraph 4]. This meets the limitation of instant claims 5 and 8. The preferred T_{trans} of the hard segment is within 30 and 150 °C and is at least 10 °C higher than that of the soft segment [page 4, bottom of fifth paragraph]. The physical stimulus of heat application to the composition in the hair as taught by Rollat-Corvol et al would cause the memory shape to be fixed and meet the limitations of instant claim 9. Langer et al also teach that an object having a shape in memory can be formed by heating the composition above the T_{trans} of the hard segment and subsequently cooled below the T_{trans} of the soft segment and if the object is to be formed into a second shape, the object can be heated above the T_{trans} of the soft segment and below that of the hard segment [page 5, paragraph 3], meeting the limitations of instant claims 4 and 10-12. Langer et al teach of the degree of crystallinity of the memory shape polymer being between 3 and 80% [page 10, paragraph 5] with a ratio of elastic modulus above and below the T_{trans} is 20 or more [page 11, top of page], meeting the limitations of instant claim 13. An example of the polymers as taught by Langer et al include copolyesterurethane [page 29, paragraph 4], meeting the limitation of instant claim 14. It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to use the shape memory polymer compositions as taught by Langer et al in the hair compositions of Rollat-Corvol et al as the

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shape memory polymers have the ability to memorize more than one shape allowing the hair [page 3, bottom of page] to be fixed in multiple forms.

With regard to instant claim 15, Rollat-Corvol et al teach of the components of the shape polymer including two polyactive hydrogen compounds (one soluble and one insoluble) with a polyisocyanate [page 3, lines 1-6], the polyactive hydrogen compounds being polyester polyols based on diols of greater than 20 carbon atoms [page 7, line 1]. The polyols used are chosen from alkyl, aryl, aralkyl structures optionally substituted by N, O, or S [page 6, lines 9-10] and the polyisocyanates can be diisocyanates [page 8, line 7]. Langer et al teach of formation of the shape memory polymer from α,ω -dihydroxy[oligo(ethylene glycol glycolate)ethylene oligo(ethylene glycol glycolate)] and α,ω -dihydroxy[oligo(L-lactate-co-glycolate)ethylene oligo(L-lactate-co-glycolate)], representative of an α,ω -dihydroxyoligoester and α,ω -dihydroxyoligolactone [page 30, top and middle (lines 18-19) of page]. While Rollat-Corvol do not specifically teach of α,ω -substituted macrodiols one of ordinary skill in the art at the time the invention was made would have found it *prima facie* obvious to use the macrodiols of Langer et al with the diisocyanates as they are a type of polyol described by Rollat-Corvol et al.

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being obvious over International Patent Application No. WO/2002/09655 (Rollat-Corvol et al) in view of U.S. Patent 5,683,685 (Hirano et al) and Japanese Patent 04-041416 (Akira).

The teachings of Rollat-Corvol et al are as discussed above. Rollat-Corvol et al do not teach of a cationic polymer in the composition or specifically of the concentrations of shape memory polymer or of cationic polymer in the composition.

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Akira teaches of a hair composition with 0.01 to 60% shape memorizing resin [abstract].

The concentration of Akira encompasses that of the instant claim.

Hirano et al teach of hair cosmetic compositions in which cationic polymers are incorporated at a concentration of 0.05 to 10% wt of the composition [column 11, line 44]. The cationic polymers include dimethyldiallylammonium chloride/acrylic amide/sodium acrylate [column 8, lines 47-48].

It would have been *prima facie* obvious for one of ordinary skill in the art at the time the invention was made to add cationic copolymers to the invention of Rollat-Corvol et al to provide excellent conditioning effects without affecting the firmness and elasticity of the hair [column 8, lines 17-21] as it is being treated. It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to have optimized the concentrations of shape memory resin and cationic group to allow the hair to be conditioned while treated and readily changed without added stiffness possibly presented by the cationic group.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

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with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7, 11-18, of copending Application No. 10/511,019. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims anticipate the claims of co-pending application no. 10/511,019.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Instant claim 1 is a species of co-pending claim 1 in that a cationic agent is also required. It would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to add a cationic agent to the invention for the added benefit of softness to the hair as commonly provided by cationic agents such as cationic surfactants.

Instant claim 2 is equivalent to identical to co-pending claims 1 and 11 in that two active agents are needed for increase memory effect. Instant claims 4-16 are identical in specified limitations to co-pending claims 3-7 and 12-19.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRACEY SIMMONS WILLIS whose telephone number is

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(571)270-5861. The examiner can normally be reached on Mondays to Fridays from 8:30 am to 5:30 pm. The examiner can also be reached on alternate Fridays from 8:30 am to 12:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Nolan, can be reached at (571)272-0857. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T. S.W./

Examiner, Art Unit 4161

/Ashwin Mehta/

Primary Examiner, Technology Center 1600